

This species is closest to *Ctenacroscelis præpotens* Wiedemann but differs in the distinct blackish thoracic stripes and the lack of a distinct yellow stigmal spot on the wings.

A SYNOPTIC REVISION OF THE CUTEREBRIDÆ, WITH SYNONYMIC NOTES AND THE DE- SCRIPTION OF ONE NEW SPECIES

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The present paper deals only with those species represented by adult material in the U. S. National Museum, totaling 108 specimens. A careful study of this material has disclosed many errors which need correction. Certain species of the older authors have been misidentified, certain valid species names have been put in the synonymy, certain synonyms have been used as valid names, and certain aberrant specimens of old species have been described as new species. These errors are corrected in the notes which follow the tables. The following synopses will serve to separate the species treated.

SUBFAMILIES AND GENERA

1. No facial carina; antennal pit large and deep; antennæ elongate.. 2
 Facial carina present; antennal pit small and shallow; antennæ
 short (CUTEREBRINÆ) 3
2. Epistoma rather broad, projected obliquely forward and down-
 ward between the peristomalia; arista thickly long-plumose to
 tip (PSEUDOGAMETINÆ) *Pseudogametes*
 Epistoma very narrow, projected straight downward between the
 peristomalia; arista with hairs on upper side only (DER-
 MATOBIINÆ) *Dermatobia*
3. Arista nude *Rogenhofera* (no material seen)
 Arista with hairs on upper side and on apical part of lower side.. 4
4. Antennal pit extended below in a tapering prolongation, the
 peristomalia converging obliquely and meeting near the lower
 end of carina..... *Cuterebra*
 Antennal pit circumscribed below, subcircular, the peristomalia
 parallel and closely approximated to carina for about the lower
 half of its length..... *Bogeria*

SPECIES OF CUTEREBRA

1. Whole thorax and scutellum clothed with light-colored pile..... 2
Mesoscutum and scutellum clothed only with short black hairs.... 3
2. Thoracic and scutellar pile cinnamon-yellow, dense; anal segment
with only black hairs.....*cuniculi* Clk.
Thoracic and scutellar pile pale yellowish, rather thin; anal seg-
ment similarly pilose..... *analis* Mcq.
3. Parafacials and cheeks wholly or partly white-hairy..... 4
Parafacials and cheeks entirely black-hairy..... 5
4. Pleuræ with only black pile.....*approximata* Wlk.
Pleuræ with yellowish-gray pile.....*histrion* Coq.
5. Pleuræ with only black pile or at most traces of whitish..... 6
Pleuræ for the most part with whitish or yellowish pile,
americana Fab.
6. Anal segment shining like rest of abdomen.....*tenebrosa* Coq.
Anal segment more or less pollinose, leaving rounded shining areas. 7
7. Mesoscutum shining, without pruinosity.....*atrox* Clk.
Mesoscutum largely whitish-pruinose.....*maculosa* Knab

SPECIES OF BOGERIA

1. Mesoscutum with light-colored pile..... 2
Mesoscutum with only black hair..... 3
2. Anal segment shining, not pollinose but thinly clothed with light
hairs*emasculator* Fitch.
Anal segment densely yellowish or grayish pollinose and with light
hair*grisea* Coq.
3. Mesoscutum grayish pruinose, thinly clothed with short hairs.... 4
Mesoscutum not pruinose, the hair longer and pile-like..... 6
4. Hind edge of scutellum with thicker and longer hair than that of
mesoscutum 5
Hind edge of scutellum with only short hair.....*buccata* Fab.
5. Anal segment densely yellowish pollinose, clothed with yellow
hair*fontinella* Clk.
Anal segment with only thin pollen and black hair....*princeps* Aust.
6. Anal segment densely yellowish pollinose, with yellow hair,
fasciata Swenk
Anal segment thinly pollinose at most, with only black hair,
scudderii n. sp.

Pseudogametes semiatra Wied.—Specimens of this most striking form, from southern Brazil, sent by Dr. A. Lutz, show

on external characters that the genus certainly belongs in the Cuterebridæ.

Cuterebra cuniculi Clk.—I consider, with Brauer, that *horripilum* Clk. must be a synonym of this species. *C. abdominalis* Swenk is the same species.

Cuterebra americana Fab.—There are several forms of this species in the east and west. The mesoscutum may be quite highly polished or with a very thin but distinct pruinosity, while the pleural pile varies from whitish to distinctly yellow. I took 14 males of the pruinose form along the stream in Hell Canyon, Manzano Forest Reserve, New Mexico, at about 5,500 to 6,500 feet, September 14 and 17, 1916; and one male of the polished form on the Rio Ruidoso, Lincoln Forest Reserve, New Mexico, at about 7,000 feet, September 30, 1916. Many specimens of the pruinose form were taken by me in July, 1898, at the same point on the Rio Ruidoso, showing that both forms occur together in the same district. *Cuterebra nitida* Coq. is evidently a male of this species with an abnormally narrow front, while *latifrons* Coq. is evidently one with an abnormally wide front. *C. polita* Coq. is the same species, as is also the allotype (male) of *lepivora* Coq. Of the above, *polita* is the form with polished mesoscutum, while the others show some pruinosity. Specimens from Virginia, South Carolina, and Georgia show the mesoscutal pruinosity rather more distinctly and have the yellowest pleural pile.

Cuterebra approximata Wlk.—Two specimens from Yuma and Phoenix, Arizona, are somewhat doubtfully referred to this species.

Cuterebra atrox Clk.—From the description, *similis* Johns. is evidently this species.

Cuterebra histrio Coq.—The holotype is from Guanajuato, Mexico. Many specimens of a form of this species were taken by myself in the Sierra Madre of western Chihuahua near Meadow Valley, at about 7,000 feet. The facio-genal pattern is intricate and peculiar.

Bogeria princeps Aust.—*C. lepusculi* Towns, *lepivora* Coq. (holotype, female), and *albifrons* Swenk are evidently this

species. From the fact that the quite detailed generic and specific descriptions given by Austen fit the male of *lepusculi* exactly in every particular except the character of the arista, I was unable to repress the conviction that Austen's specimens had the arista denuded of hairs, especially since the very striking pile coloration described is known to me in no other form. I accordingly wrote to the British Museum for information, and now take the liberty of quoting here the reply kindly sent me by Dr. Guy A. K. Marshall: "I have examined Mr. Austen's type of *Bogeria princeps*, but, unfortunately, the head is in a dirty condition, and only one antenna is left. At first sight, the arista certainly does appear to be entirely bare, but, on examining it with a higher power, I find a portion of a hair on the basal half, and it seems to me extremely probable that the arista has really been denuded. In Mr. Austen's second specimen both the antennæ are gone, so that this does not throw any light on the matter." In the female the white pile of pleuræ does not follow around the edge of scutellum and is lacking on base of abdomen. Some males also lack this pile on base of abdomen, while others show it conspicuously developed. The species reaches Arizona, California, Nevada, and New Mexico, and attacks both the jack rabbit and the cottontail. The genus is valid on facial characters, as described and figured by Austen.

Bogeria emasculator Fitch.—This is a valid species and entirely distinct from *fontinella* Clk. It is a parasite of squirrels and chipmunks. *C. scutellaris* Br. is the same species. It appears to be restricted in range to the northeastern parts of North America.

Bogeria fasciata Swenk.—This species seems to replace *emasculator* in the west, and has the same habits. It was reared by me from a larva taken in July, 1898, from the fore leg of a *Tamias* sp., on the Rio Ruidoso, New Mexico, the fly issuing the following May. The first-stage larvæ of both this and the preceding species probably enter such part of the host as happens to be most convenient, penetrating the scrotum when offered and not by invariable habit. The headless specimen in the U. S. National Museum labeled "Fitch's type" and "C.

emasculator" was so labeled under a misapprehension, as proved by its entire disagreement with the description. It is simply a specimen that had been wrongly so determined by Fitch, after describing his species. It is *fasciata* Swenk. *C. fontinella* Austen (nec Clark), 1895, Ann. Mag. N. H., ser. 6, Vols. XV, XVI, is also this species. The location of Fitch's holotype of *emasculator* is unknown. It was probably sent to some correspondent. Little importance was attached to type specimens in this country in Fitch's day.

Bogeria fontinella Clk.—There are three specimens of this species in the collection, from South Carolina, Florida, and Mississippi. It is a larger species than either of the two preceding and decidedly broader, rather closely approaching *buccata* in both form and size and like it evidently confined to rabbits. It may be at once distinguished from the squirrel flies by the pronounced gray pruinosity of the mesoscutum. At first sight, it appears identical with *buccata*, though slightly undersized, but is at once known by its densely pollinose anal segment.

Bogeria grisea Coq.—This is a small northwestern form intermediate between *emasculator* and *fasciata*.

Bogeria scudderi, new species.

Length of body, 16 to 20 mm.; of wing, 14 to 16 mm.; width of thorax, 7 to 8 mm. Three males as follows, all reared from rabbits: Washington, D. C., fly issued March 4, 1895, larva collected by Mr. N. P. Scudder; Round Mountain, Texas, fly issued September 20, 1895, larva taken by Mr. F. G. Schaupp from leg of host; Beltsville, Maryland, larva collected by Mr. E. B. Marshall, November 24, 1911. (All det. Coqt. as *buccata* Fab.)

Differs from *buccata* F. as follows: Narrower in form. Male front very narrow. Mesoscutum and scutellum chocolate color, clothed with short blackish pile, interspersed with a few grayish hairs along transverse suture. Abdomen chestnut-brown, the disk of tergum metallic and following the hind borders of segments laterally. Wings less deeply infusate. Pollinose spots not apparent on front.

Holotype, No. 20953, U. S. Nat. Mus.

Named in honor of Mr. N. P. Scudder, of the National Museum Library, who collected the first specimen.

Through the kindness of Dr. B. H. Ransom, Chief of the Zoological Laboratory, Bureau of Animal Industry, U. S. Department of Agriculture, I have had the opportunity to examine two third-stage larvæ, taken from the throat of hogs, which I am able, by comparison with puparia, to identify as this species. The entire, strong, sharply-pointed, thorn-like spines of these larvæ are distinctive of the rabbit bots of this group. The material is as follows:

B. A. I. Parasite Coll. No. 15614.—One specimen in situ in larynx of hog, Blacksburg, Virginia, collected by N. S. Mayo, July 22, 1910. The larva had embedded itself longitudinally in the wall of the larynx, on one side, even with the vocal chords.

B. A. I. Par. Coll. No. 18026.—One specimen from "larynx or pharynx" of hog, Birchwood, Tennessee, collected by B. J. Amerson, July, 1915.

In the first case above, the larva was uninjured and had evidently reached its location through its own locomotory efforts, by working its way from the pharynx, mouth, or gullet. It is a question whether the hog in this case, in rooting among rabbit burrows, ingested the egg from which proceeded this larva; or whether it ate the rabbit host containing this larva in the third stage, without incapacitating the latter, which was saved from being swallowed by its sharp spines and was afterwards able to make its way into the larynx. In the second case above, the larva appeared to have been injured by the teeth of the hog, indicating that the latter had ingested it either free or in situ in the rabbit host, but was unable to swallow it by reason of its very sharp spines piercing the œsophageal or pharyngeal membranes.

SOME INTERESTING ORTHOPTERA FROM MEXICO

By A. N. CAUDELL

Among a small lot of Orthoptera recently sent in for determination by Mr. Roberto Müller from Presidio, Mexico, were